Chevron

Global Gas

Jeff Cosgray
Remediation Team
Leader

Health, Environmental & Safety
Chevron Pipe Line Company
4800 Fournace, E320C
Bellaire, Texas 77401-2324
Tel 713 432 3335
Fax 866 653 0301
JCOS@Chevron.com

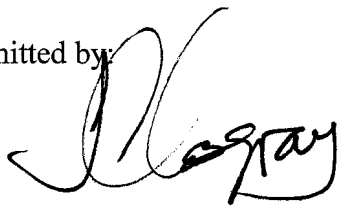
October 29, 2007

Mr. Jerry Wickham
Department of Environmental Health
Alameda County Health Agency
1131 Harbor Bay Parkway
Alameda, California 94502

Dear Mr. Wickham:

I declare, under penalty of perjury, that the information and/or recommendations contained in URS' report titled "**SLIC Case No. RO0002892, Chevron Sunol Pipeline, 2793 Calaveras Road, Sunol, CA – Additional Monitoring Well Installation Report**" are true and correct to the best of my knowledge at the present time.

Submitted by:



Jeffrey Cosgray
Chevron Pipe Line Company

This report ("**Additional Monitoring Well Installation Report**") was prepared under my direct supervision. The information presented in this report is based on our review of available data obtained during our additional monitoring well installation and quarterly sampling activities and our previous subsurface investigation efforts. To the best of our knowledge, we have incorporated into our recommendations all relevant data pertaining to the Chevron Pipeline Release site in Sunol, California.

The additional monitoring well installation report discussed herein was developed in accordance with the standard of care used to develop this type of report. The assumptions that were made and the recommendations for continued field activities were based on our professional experience and protocols reported in the literature for similar investigations.

URS Corporation
Approved by:

Joe Morgan III

Robert Horwath, P.G.

ADDITIONAL MONITORING WELL INSTALLATION REPORT

CHEVRON SUNOL PIPELINE SUNOL, CALIFORNIA

Prepared for

Chevron Pipe Line Company
4800 Fournace Place, E320C
Bellaire, Texas 77401

October 2007

URS Corporation
1333 Broadway, Suite 800
Oakland, California 94612

26815217

TABLE OF CONTENTS

TABLE OF CONTENTS

Tables

Figures

Appendices

ACEH	Alameda County Department of Environmental Health
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CPL	Chevron Pipe Line Company
HASP	Health and Safety Plan
HSA	hollow-stem auger
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
mg/kg	milligram(s) per kilogram
MS	matrix spike
MSD	matrix spike duplicate
msl	mean sea level
PID	photoionization detector
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RPD	relative percent difference
SFPUC	San Francisco Public Utilities Commission
Site	Chevron Pipeline Sunol site
SVE	soil vapor extraction
TPH-GRO	total petroleum hydrocarbons quantified as gasoline range organics
URS	URS Corporation
USEPA	U.S. Environmental Protection Agency

On behalf of the Chevron Pipe Line Company (CPL), URS Corporation (URS) installed two additional groundwater monitoring wells (MW-10 and MW-11) in the unconfined water-bearing zone to further evaluate the soil and groundwater conditions resulting from the August 14, 2005, gasoline pipeline release at the Chevron Sunol Pipeline site (Site) in Sunol, California. The additional investigation was conducted to fulfill the requests stated in the January 17, 2007, April 10, 2007, and August 17, 2007 Alameda County Environmental Health (ACEH) comment letters to CPL (Appendix A). The investigation was conducted in accordance with *Work Plan for Additional Monitoring Well Installation* (URS 2007a), which was submitted to ACEH on July 27, 2007.

This report describes the installation of two additional groundwater monitoring wells. Specifically, this report is intended to fulfill the ACEH's technical report request to submit an additional monitoring well installation report by December 19, 2007.

This report is organized as follows:

- Section 2 provides a summary of the release history as well as the previous subsurface investigation and remediation activities at the Site.
- Section 3 describes the field activities involved in installing the two additional groundwater monitoring wells.
- Section 4 discusses the geology at the Site.
- Section 5 summarizes the analytical results of the additional investigation.
- Section 6 summarizes the quality assurance and quality control assessment of the analytical data.
- Section 7 presents the findings and recommendations.
- Section 8 describes the limitations applicable to this report.
- Section 9 presents a list of the reference materials used to prepare this report.

This section provides a summary of the release history as well as the previous investigation and remediation activities at the Site.

2.1 RELEASE HISTORY AND INVESTIGATION EFFORT TO DATE

An unleaded gasoline release occurred on August 14, 2005 when an underground pipeline (the Bay Area Pipeline) was damaged during dirt road grading activities. The location of the pipeline release is approximately 2.7 miles south of the intersection of Interstate 680 and Calaveras Road, between mileposts 2.7 and 2.8 of Calaveras Road, in Sunol Valley, Valle de San Jose Mexican land grant (La Costa Valley Quadrangle) in Alameda County, California. The release location is approximately 4 miles southeast from the city of Sunol, California (Figure 1). The pipeline extends along Calaveras Road and traverses a steep hillside above the east side of the road. The San Francisco Public Utilities Commission (SFPUC) owns the property where the release occurred and leases it to a cattle rancher. Immediately to the west of Calaveras Road at the location of the release is a tree nursery (the Valley Crest Tree Company), which also leases the property from the SFPUC.

The release location is on a steep, west-facing slope with a grade of 80 to 90 percent. Vegetation at the release location is predominantly oak woodland. A small stream is located approximately 150 to 200 feet north of the release location. This stream flows into the Alameda Creek floodplain and joins Alameda Creek seasonally.

Prior to the installation of MW-10 and MW-11, URS conducted six phases of subsurface investigation at the Site (URS 2005, 2006a, 2006b) and installed a total of nine groundwater monitoring wells (MW-1 through MW-9) as shown on Figure 2. Quarterly groundwater monitoring has been conducted since the first quarter of 2006.

Two water-bearing zones are observed at the Site; the unconfined water-bearing zone (screened by wells MW-1 through MW-4, MW-8, and MW-9) and the confined sandstone water-bearing zone (screened by wells MW-5 through MW-7). Based on the quarterly groundwater monitoring results, the unconfined water-bearing zone appears to be the hydrogeologic unit of concern for contaminant transport. Although groundwater movement within the nursery unconfined water-bearing zone is affected by seasonal fluctuations in precipitation, the local groundwater flow direction is in a northerly direction (URS 2007b).

Well MW-9 was installed in August 2006, approximately 160 feet northwest west of the release location, as shown on Figure 2. MW-9 was intended to define the northern extent of the contaminant plume. However, small amounts (0.02 feet) of free-phase product have been observed in MW-9 since the third quarter of 2006. Due to the complex subsurface conditions, URS collected additional subsurface data utilizing GORE™ Surveys during April and May 2007. The GORE™ Surveys were used to passively collect soil gas samples in the area north of MW-9 within the nursery and the adjacent cattle grazing land. Based on the survey results, URS identified two GORE™ Survey module locations approximately 50 feet northwest and 100 feet west of MW-9 with elevated low-level Total Petroleum Hydrocarbon (TPH) concentrations (URS 2007a).

On September 4 through 6, 2007 URS installed two additional groundwater monitoring wells (MW-10 and MW-11) to the north and northwest of MW-9 to assess the downgradient edge of the groundwater plume, as shown on Figure 2. The results of the additional monitoring well installation are described in the following sections.

In response to ACEH's request for further evaluation of dissolved phase contamination downgradient of MW-9 at the Site, URS conducted additional subsurface investigation activities on September 4 through 6, 2007. A total of two borings were advanced and completed as groundwater monitoring wells (MW-10 and MW-11) using a modified Gus Pech rig equipped with a Sonic head.

3.1 PERMITS AND PRE-DRILLING PROCEDURES

Before initiating field activities, URS obtained soil boring permits from the Zone 7 Alameda County Flood Control and Water Conservation District. A copy of this permit is provided in Appendix B. URS notified Underground Service Alert 48 hours before initiating field activities. Cruz Brothers Locators, Inc., a private utility locator from Scotts Valley, California, used electromagnetic methods to clear all boring locations for the presence of underground utilities.

URS developed a site Health and Safety Plan (HASP) that described the potential hazards associated with the proposed field activities (advancing soil borings, soil and groundwater sampling, and well development). The HASP also provided safe work procedures to mitigate the potential work hazards. A copy of the HASP was available on site at all times. The URS site supervisor held tailgate safety meetings each morning to discuss the relevant aspects of the HASP for the day's scheduled work. Job safety analyses were developed for specific work tasks and were discussed during the daily tailgate safety meetings.

3.2 BORINGS AND SAMPLE COLLECTION

URS subcontracted Cascade Drilling, Inc. (Rancho Cordova, California) to advance borings MW-10 and MW-11 to total depths of 55.7 and 48 feet below ground surface (bgs), respectively, on September 4 through 6, 2007. Each boring location was advanced approximately one foot into the bedrock to meet the objectives of the ACEH. URS utilized Sonic drilling methods to advance both borings north and northwest of MW-9 within the Valley Crest Tree Company property on the west side of Calaveras Road (Figure 2). MW-10 and MW-11 were converted to monitoring wells during this phase of field activities and will be discussed further below.

Continuous soil cores were obtained at MW-10 and MW-11 using a 4-inch diameter core barrel. The core barrel was driven ahead of the 6-inch diameter outer drive casing to facilitate

monitoring well installation. No drilling fluid was used and groundwater was not encountered during drilling at either boring location.

A URS geologist observed the boring activities and collected soil samples for lithologic characterization and laboratory analysis. Soil cores were logged using the Unified Soil Classification System (ASTM D2487). A portion of soil from approximately 5-foot intervals was collected for headspace analysis to test for the presence of volatile organic compounds using a photoionization detector (PID). The PID readings were noted on the boring logs along with the lithologic information (Appendix C). No elevated PID readings were noted and no visual or olfactory impacts were observed at either boring location.

Because of the absence of elevated PID readings, and visual or olfactory indications of soil contamination, soil samples were collected for laboratory analysis within soil horizons most likely to be contaminated based on previous investigation data. At MW-10 three soil samples were collected for laboratory analysis; one sample from just above the silt/gravel contact; one sample from relatively finer grained soils within the gravel layer, and one sample from a sandy silt zone just above the siltstone bedrock contact. At MW-11 two soil samples were collected for laboratory analysis; one sample from just above the silt/gravel contact and one sample from a weathered zone at the gravel/siltstone bedrock contact. The finer grained soils within the gravel layer were not observed within the borehole of MW-11. Soil samples were collected in accordance with U.S. Environmental Protection Agency (USEPA) Method 5035 and were field preserved in sodium bisulfate and methanol to extend the sample hold time.

URS placed all soil samples in an ice-filled cooler and transported them under chain-of-custody procedures to Lancaster Laboratories, Inc., of Lancaster, Pennsylvania, a California Department of Health Services certified laboratory (California Certification No. 2116). The chain-of-custody forms and the complete laboratory analytical results are provided in Appendix D.

Investigation-derived waste, including soil cuttings, and decontamination rinsate, was stored on site in 55-gallon drums until they could be characterized and disposed of off-site.

3.3 MONITORING WELL INSTALLATION

After boring completion, borings MW-10 and MW-11 were completed as groundwater monitoring wells. Both wells were constructed with 2-inch-diameter, flush-threaded, Schedule

40 polyvinyl chloride (PVC) blank casings and 0.020-inch-slot PVC well screens. PVC bottom caps extend approximately 0.3 feet below the well screen. The screened interval extends from 40.3 to 55.3 feet bgs at MW-10 and from 37.0 to 47.0 feet bgs at MW-11. The wells were completed with #3 RMC™ sand filter packs placed within the annulus of each well from the bottom of the casing to approximately 1 foot above the top of the well screen. The annulus of each well was sealed with 2 feet of hydrated bentonite chips on top of the filter pack, and a Portland cement and bentonite grout slurry tremied to the surface. Both wells were completed with flush-mount vault box completions and locking watertight well caps. Copies of the soil boring logs and the well construction details are provided in Appendix C. The well completion details for all eleven groundwater monitoring wells at the Site (MW-1 through MW-11) are summarized in Table 1.

No groundwater was encountered within either well at the time of completion. The wells were gauged a second time on September 12, 2007 and insufficient water was present to develop the wells. MW-10 contained 0.18 feet of water in the well sump and may have accumulated during well construction. Currently no development is planned for either well. The wells will continue to be gauged during quarterly groundwater monitoring activities and the need for development will be reevaluated based on future measurements.

3.4 PROPOSED OPTIONAL MONITORING WELLS

URS proposed in the *Work Plan for Additional Monitoring Well Installation* (URS 2007a), if needed, that a total of five monitoring wells (MW-10 through MW-14) would be installed during this phase of investigation. However, since groundwater was not observed during the installation or subsequent regauging (September 12, 2007) of MW-10 and MW-11 and only trace soil impacts were detected in soil samples from MW-10 (Section 5), URS staff recommends that the optional monitoring wells not be installed at this time. The proposed optional monitoring wells will need to be installed only if groundwater from MW-10 and MW-11 demonstrate that petroleum hydrocarbon impacts are present.

3.5 ANALYSIS PROGRAM

All soil samples collected for laboratory analysis were placed in a cooler with ice and transported under URS chain of custody to Lancaster Laboratories as described above. The samples were analyzed for the following:

- Total Petroleum Hydrocarbons: Gasoline Range Organics (TPH-GRO) by N. CA LUFT GRO
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8260B

4.1 GEOLOGY

A URS geologist logged soil borings MW-10 and MW-11, advanced as part of the additional monitoring well installation activities. The logs for the borings are presented in Appendix C.

The lithology of MW-10 consists of sandy silt to silty sand extending from ground surface to 37 feet bgs. Underlying the silty sand and sandy silt layers and extending to 48 feet bgs is a coarse gravel/cobble layer with a silt matrix interbedded with a coarse sand and fine gravel layer. Underlying the gravel and sand sequence is a sandy silt unit extending to the siltstone bedrock encountered at 53 feet bgs.

The lithology of MW-11 consists of sandy silt from ground surface to 27 feet bgs. Underlying the sandy silt layer and extending to 45.5 feet bgs is a coarse gravel/cobble layer with a sand and silt matrix. Underlying the gravel/cobble layer and extending to 46.5 feet bgs is a highly weathered siltstone bedrock zone. The weathered zone is underlain by more competent siltstone bedrock.

Hydrogeologic cross sections A-A' and B-B' (Figures 3 and 4) represent the subsurface geology and were generated using information obtained from the soil borings from both the additional well installation activities and the previous investigations. Groundwater levels collected on September 12, 2007 are included on the cross sections to illustrate the relationship between subsurface geology and groundwater flow within the unconfined water-bearing zone.

Previous investigation data suggests that groundwater flow within the unconfined water-bearing zone is governed primarily by two factors: the surface topography of the siltstone bedrock lower confining layer and the lateral continuity of the hydraulically conductive gravel zone.

Data obtained from soil borings MW-10 and MW-11 supports previous findings that the irregularly eroded siltstone bedrock surface slopes downward in a north to north easterly direction. The groundwater gradient within the unconfined water-bearing zone (calculated from groundwater elevations collected during quarterly sampling events) has generally correlated with the slope of the bedrock surface. The absence of groundwater at MW-10 and MW-11, however, may suggest that groundwater flow to the north is impeded by finer-grained soils present at the siltstone bedrock contact, as observed at MW-10. The presence of the sandy silt layer may also indicate that the gravel layer may be vertically discontinuous to the north. However, finer-

grained soils were not encountered at the bedrock contact at MW-11 and groundwater levels are at seasonal lows, additional groundwater data will be collected during upcoming quarter sampling events prior to further interpretation of groundwater behavior.

This section presents the analytical results from the soil samples collected as part of the additional monitoring well installation. A summary of the soil analytical results is presented in Table 2 and the complete laboratory analytical reports are provided as Appendix D.

5.1 SOIL SAMPLES

Three soil samples were collected from boring MW-10 (36.5, 43, and 52.5 feet bgs). The TPH-GRO concentrations ranged from below laboratory reporting limits in MW-10-36.5 and MW-10-43 to 8.3 milligrams per kilogram (mg/kg) in MW-10-52.5. The benzene concentrations were below laboratory reporting limits in the samples collected from all three depths. Toluene ranged from below laboratory reporting limits in MW-10-36.5 and MW-10-43 to 0.049 mg/kg in MW-10-52.5. The ethylbenzene concentrations ranged from below laboratory reporting limits in MW-10-43 to 0.083 mg/kg in MW-10-36.5. The total xylenes concentrations ranged from below laboratory reporting limits in MW-10-43 to 0.12 mg/kg in MW-10-52.5. Furthermore, all soil results from MW-10 were below environmental screening levels (ESLs) for deep soils (>3 m) where groundwater is a potential source of drinking water (RWQCB, 2005).

Two soil samples were collected from boring MW-11 (26.5 and 46 feet bgs). The concentrations of TPH-GRO and BTEX were all below the laboratory reporting limits in both samples. Furthermore, all soil results from MW-11 were below ESLs for deep soils (>3 m) where groundwater is a potential source of drinking water.

6.1 SUMMARY OF QA/QC REVIEW PARAMETERS

The quality assurance/quality control (QA/QC) program includes using standard sample collection procedures in the field and established analytical methodologies in the laboratory. Laboratory and field QC sample results were evaluated to assess the quality of the individual sample results and overall method performance. Analytical performance was evaluated on a "batch QC" basis by evaluating the QC sample results for groups of samples that were prepared and analyzed together. The data evaluation performed included review of:

- Blanks (laboratory method blanks and trip blanks)
- Spikes (laboratory control sample spikes, matrix control spikes, and surrogate spikes)
- Duplicates (laboratory control sample duplicates and field duplicates)
- Sample Integrity (chain-of-custody documentation, sample preservation, and holding time compliance)

6.1.1 Method Holding Times

Analytical methods have prescribed holding times. The method holding time is defined as the maximum amount of time after collection that a sample may be held prior to extraction and/or analysis. Sample integrity becomes questionable for samples extracted and/or analyzed outside of the prescribed holding times due to degradation and/or volatilization of the sample. The QA/QC review identifies results with exceeded method holding times. No analytical method holding times were exceeded during the current reporting period.

6.1.2 Method Blanks

Method blanks are prepared in the laboratory using deionized, distilled (Reagent Grade Type II) water. Method blanks are extracted and/or analyzed following the same procedures as an environmental sample. Analysis of the method blank indicates potential sources of contamination from laboratory procedures (e.g., contaminated reagents, improperly cleaned laboratory equipment) or persistent contamination due to the presence of certain compounds in the ambient laboratory environment. The QA/QC review identifies method blanks with detections of target analytes and evaluates the effect of the detections on associated sample results.

6.1.3 Trip Blanks

Trip blanks are samples of deionized, distilled (Reagent Grade Type II) water that are prepared in the laboratory, taken to the field, retained on site throughout sample collection, returned to the laboratory, and analyzed with the environmental samples. The QA/QC review identifies trip blanks with detections of target analytes and evaluates the effect of the detections on associated sample results.

6.1.4 Matrix Spikes and Laboratory Control Samples

Matrix spikes (MSs), matrix spike duplicates (MSDs), laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) are analyzed by the laboratory to evaluate the accuracy and precision of the sample extraction and analysis procedures and to evaluate potential matrix interference. Matrix interference, the effect of the sample matrix on the analysis, may partially or completely mask the response of analytical instrumentation to the target analyte(s). Matrix interference may have a varying impact on the accuracy and precision of the extraction and/or analysis procedures, and may bias the sample results high or low.

The MS or MSD is prepared by adding a known quantity of the target compound(s) to a sample. The sample is then extracted and/or analyzed as a typical environmental sample and the results are reported as percent recovery. The spike percent recovery is defined as:

$$\text{Recovery (\%)} = \frac{\text{spike analysis result - original sample concentration}}{\text{concentration of spike addition}} \text{ x100\%}$$

MS and MSD recoveries are reviewed for compliance with laboratory-established control limits to evaluate the accuracy of the extraction and/or analysis procedures.

LCSs and LCSDs are prepared exactly like MSs and MSDs using a clean control matrix rather than an environmental sample. Typical control matrices include Reagent Grade Type II water and clean sand. LCSs and LCSDs are used to evaluate laboratory accuracy independent of matrix effects.

The QA/QC review identifies spike recoveries outside laboratory control limits and evaluates the effect of these recoveries on the associated sample results.

6.1.5 Laboratory Duplicate Analyses

The laboratory performs duplicate analyses to evaluate the precision of analytical procedures. The laboratory may perform MSD and/or LCSD analyses.

Precision is evaluated by calculating a relative percent difference (RPD) using the following equation:

$$\text{RPD (\%)} = \left| \frac{\text{(Spike Concentration – Spike Duplicate Concentration)}}{\frac{1}{2}\text{(Spike Concentration + Spike Duplicate Concentration)}} \right| \text{ x } 100\%$$

The RPD is compared to laboratory-established control limits to evaluate analytical precision. The QA/QC review identifies RPDs outside laboratory control limits and evaluates the effect of these recoveries on the associated sample results.

6.1.6 Field Duplicate Analyses

Field duplicate samples are collected in the field and analyzed to evaluate the heterogeneity of the matrices. One field duplicate sample, MW-X, was collected during this sampling event.

6.1.7 Surrogate Recoveries

Surrogates are organic compounds that are similar to the target analytes in terms of their chemical structures and response to the analytical instrumentation, but are not usually detected in environmental samples. Surrogates are added to each environmental and laboratory QC sample to monitor the effect of the matrix on the accuracy of the extraction and/or analysis of organic analytes. Results for surrogate analyses are reported in terms of percent recovery (defined above). Reported recoveries are compared to laboratory-established control limits to evaluate sample-specific accuracy. The QA/QC review identifies surrogate recoveries outside laboratory control limits and evaluates the effect of these recoveries on the sample results.

6.2 EXPLANATION OF ANALYTICAL DATA QUALIFIERS

The analytical data were reviewed and qualified following USEPA guidelines for organic data review (USEPA 1999). A “J” qualifier indicates that the analyte was positively identified, but that the associated numerical value is an approximate concentration of the analyte in the sample.

A "UJ" qualifier indicates that the analyte was not detected above the reported sample quantitation limit (i.e., the laboratory reporting limit); however, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. An "R" qualifier indicates that the sample results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria and, therefore, the presence or absence of the analyte could not be verified.

6.3 SUMMARY OF QA/QC REVIEW FINDINGS

The certified analytical reports from the analytical laboratory were subjected to a quality assurance/quality control (QA/QC) review and data validation by URS. Laboratory and field QC sample results were evaluated to assess the quality of the individual sample results and overall method performance. The data evaluation performed included review of:

- Blanks (laboratory method blanks and trip blanks)
- Spikes (laboratory control spikes, matrix control spikes and surrogate spikes)
- Duplicates (laboratory control spike duplicates, matrix control spike duplicates and field duplicates)
- Sample integrity (chain-of-custody documentation, sample preservation, and holding time compliance)

All reported results for the laboratory method blanks were nondetect (less than the laboratory reporting limit), indicating no evidence of contamination from laboratory instrumentation. Trip blanks and duplicate samples were not collected for this sampling event.

All reported laboratory control spike (LCS) sample recoveries and matrix control spike (MS) sample recoveries were within laboratory QC limits. MS recoveries were not reported for sample batches Q072491AA and R072501AA; however, LCS recoveries were within laboratory QC limits for these sample batches, so no qualification was necessary. Low trifluorotoluene surrogate recovery was observed in sample MW-10-52.5. The TPH-gas detection in sample MW-10-52.5 was qualified with a J, indicating that the analyte was positively identified, but that the associated numerical value is an approximate concentration of the analyte in the sample.

Chain-of-custody documentation was complete and consistent. Samples were preserved as required per method specifications. All samples were analyzed within the method-specified holding times.

The data quality evaluation indicated that no systematic problems were detected, and the overall data objectives for sample contamination, precision, accuracy, and sample integrity were met. These analytical data are of acceptable quality and may be used for their intended purposes.

Based on the results of the additional monitoring well installation activities, URS has prepared the following findings:

- Groundwater was not present in either of the newly installed monitoring wells (MW-10 and MW-11) although the contact between the overburden materials and the lower confining bedrock surface would suggest otherwise. The absence of groundwater at MW-10 and MW-11 may be attributed to the presence of silty soils at the soil/bedrock contact at MW-10; suggesting lateral discontinuity of the hydraulically conductive gravel zone. However, because finer-grained soils were not encountered at the bedrock contact at MW-11 and groundwater levels are at seasonal lows, additional groundwater data will be collected during upcoming quarter sampling events prior to further interpretation of groundwater behavior.
- Because groundwater was not encountered at MW-10 and MW-11, no groundwater samples could be collected for analysis. Although no noticeable impacts were evident in the soil cores, samples were collected from various depths in both borings based on previous investigation data. Trace impacts were detected in the MW-10 laboratory samples and no evidence of contamination was detected in the MW-11 laboratory samples.

Based on the findings of the additional monitoring well installation activities, URS has made or is currently implementing the following recommendations:

- Continue quarterly groundwater monitoring to further assess the effect of seasonal groundwater fluctuations on groundwater flow direction and contaminant transport within the unconfined water-bearing zone. The results of the third quarter 2007 groundwater monitoring activities will be discussed in detail in URS' Third Quarter 2007 Groundwater and Soil Vapor Extraction System Monitoring Report.
- Based on the absence of groundwater at MW-10 and MW-11, and the presence of only trace soil impacts at MW-10, URS does not suggest further subsurface exploration and/or well installation at this time. The need for additional investigation will be re-assessed based on the results of future quarterly groundwater monitoring results.

No evaluation is thorough enough to preclude the possibility that materials that are currently considered hazardous or materials that may be considered hazardous in the future may be present at a site. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants presently considered nonhazardous may, in the future, fall under different regulatory standards and require remediation. Opinions and judgments expressed herein, which are based on understanding and interpretation of current regulatory standards, should not be construed as legal opinions. This document and the information contained herein have been prepared solely for CPL's use, and reliance on this report by third parties will be at such party's sole risk.

The report discussed herein was developed in accordance with the standard of care used to develop this type of report. The assumptions that were made and the recommendations for additional field activities were based on our professional experience and protocols reported in the literature for similar investigations.

RWQCB. 2005. *Environmental Screening Levels.* February. (Referred to as ESLs in text)

URS Corporation. 2005. *Subsurface Investigation Report, Chevron Pipeline Release, Sunol, California*. December. (Referred to as Subsurface Investigation Report in text)

URS Corporation. 2006a. *Additional Subsurface Investigation Report, Chevron Sunol Pipeline, Sunol California.* May.

URS Corporation. 2006b. *Additional Groundwater Monitoring Well Installation and Third Quarter 2006 Groundwater Monitoring Report, Chevron Sunol Pipeline, Sunol California*. December.

URS Corporation. 2007a. *Work Plan for Additional Monitoring Well Installation, Chevron Sunol Pipeline, Sunol California.* July.

URS Corporation. 2007b. *Second Quarter 2007 Groundwater and Soil Vapor Extraction System Monitoring Report. August.*

U.S. Environmental Protection Agency (USEPA). 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. October.

Tables

TABLE 1
Monitoring Well Construction Details
Additional Monitoring Well Installation
October 2007
Chevron Sunol Pipeline

Well ID	Date Completed	Easting	Northing	Ground Surface Elevation (feet msl)	Top of Casing Elevation (feet msl)	Screen Top (feet bgs)	Screen Bottom (feet bgs)	Total Depth (feet bgs)	Well Diameter
MW-1	10/20/2005	6168139.39	2025761.69	328.49	328.04	29.3	39.3	40.0	4" PVC
MW-2	10/21/2005	6168115.96	2025712.04	324.85	324.15	23.3	38.3	39.0	4" PVC
MW-3	10/21/2005	6168083.90	2025767.15	326.05	325.65	21.3	36.3	37.0	4" PVC
MW-4	1/31/2006	6168112.65	2025821.72	329.97	329.67	30.7	40.7	41.0	4" PVC
MW-5	1/27/2006	6168225.98	2025764.36	335.14	334.81	39.5	49.5	49.8	4" PVC
MW-6	1/27/2006	6168213.24	2025711.81	332.61	332.38	34.7	49.7	50.0	4" PVC
MW-7	1/27/2006	6168231.84	2025799.52	336.46	336.22	34.7	49.7	50.0	4" PVC
MW-8	8/15/2006	6168227.45	2025772.92	335.23	333.93	14.5	24.5	25.0	2" PVC
MW-9	8/16/2006	6168158.53	2025840.07	333.49	333.07	36.0	46.0	46.5	2" PVC
MW-10	9/5/2007	6168146.88	2025919.55	336.55	335.89	40.3	55.3	55.7	2" PVC
MW-11	9/6/2007	6168077.24	2025876.37	330.29	329.89	37.0	47.0	47.3	2" PVC

Notes:
Northing and Easting coordinates based on the California Coordinate System Zone 3 NAD83 Datum.
msl - Elevation values displayed in feet above average mean sea level surveyed to NAVD88 datum
bgs - Below ground surface.
MW-1 through MW-3 surveyed on October 31, 2005.
MW-4 through MW-7 surveyed on February 14, 2006.
MW-8 and MW-9 surveyed on November 10, 2006.
MW-10 and MW-11 surveyed on September 13, 2007.

TABLE 2
Summary of Soil Analytical Results
Additional Monitoring Well Installation
October 2007
Chevron Sunol Pipeline

Sample ID	Sample Depth feet bgs	TPH-GRO mg/kg	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Xylenes (Total) mg/kg
ESLs		100	0.044	2.9	3.3	2.3
MW-10	36.5	<0.8	<0.021	<0.042	0.083	0.062
	43	<0.8	<0.015	<0.030	<0.030	<0.030
	52.5	8.3	<0.019	0.049	0.044	0.12
MW-11	26.5	<0.8	<0.016	<0.031	<0.031	<0.031
	46	<0.9	<0.024	<0.047	<0.047	<0.047

TPH-GRO - Total petroleum hydrocarbons quantified as gasoline range organics
bgs - below ground surface
mg/kg - milligrams per kilogram
ESLs - Environmental screening levels for deep soils (>3 m) where groundwater IS a potential source of drinking water (SF Bay RWQCB 2005).

Figures

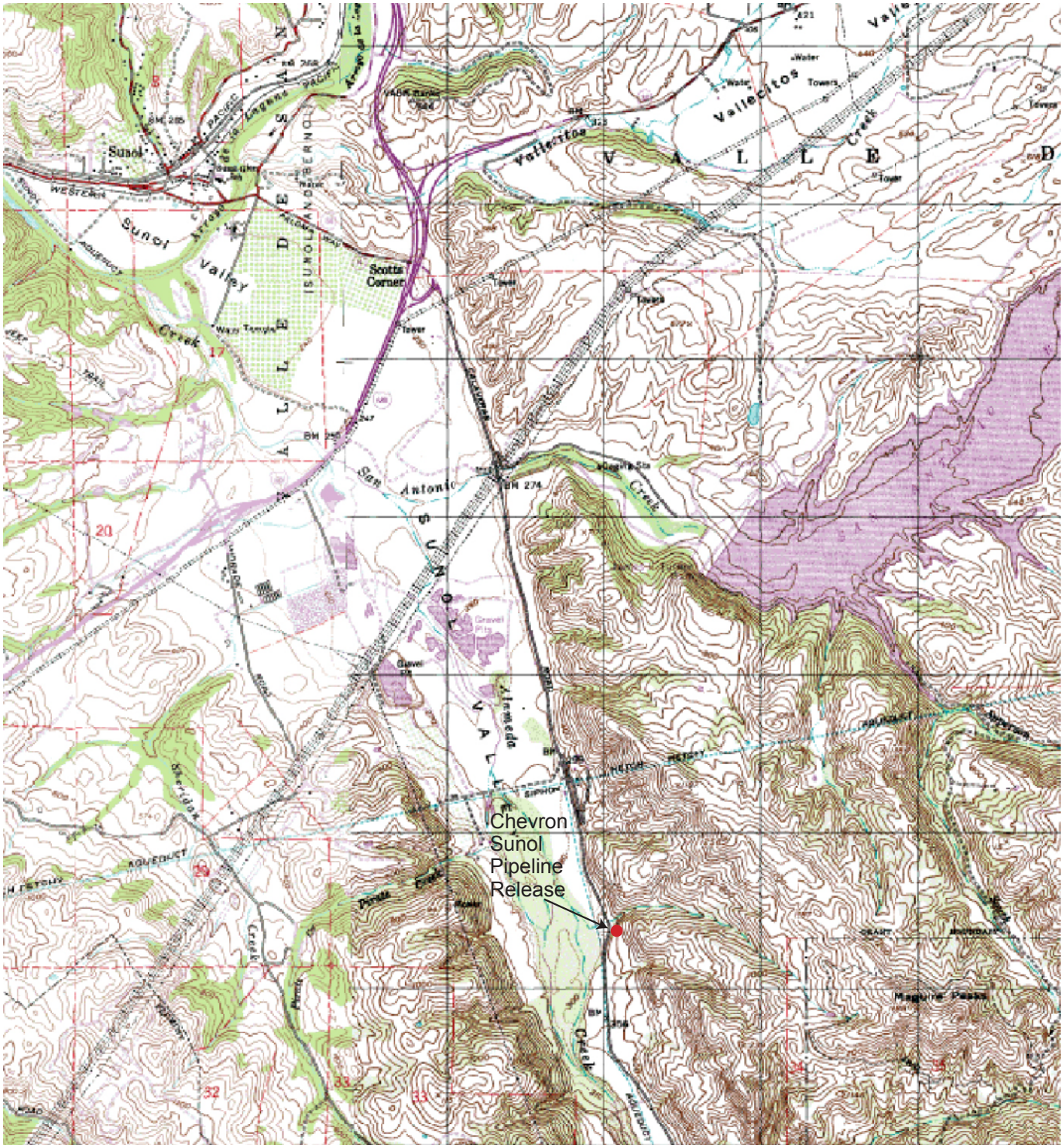


Image obtained from topozone.com

N

MAP REFERENCE:

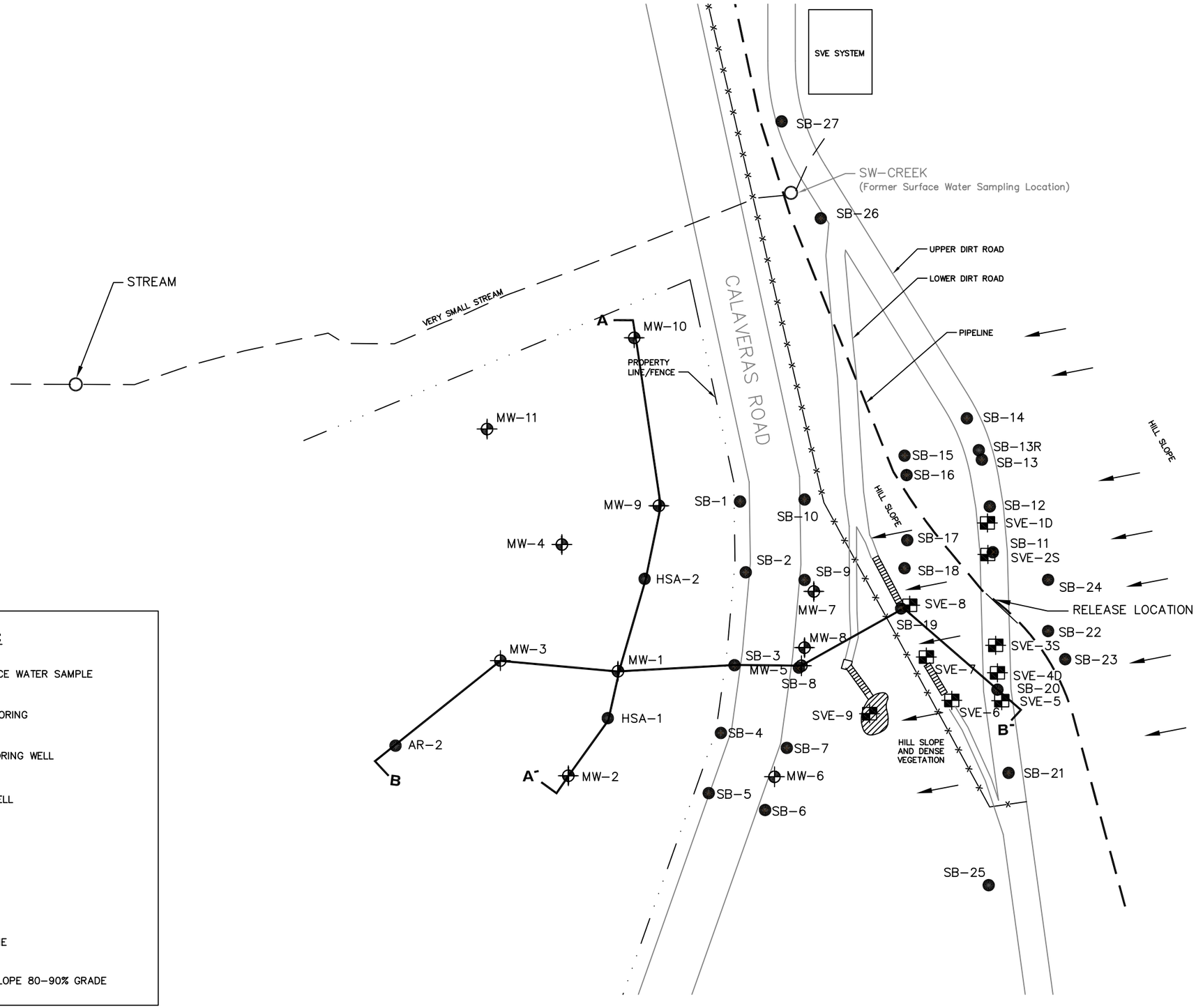
PORTION OF U.S.G.S. QUANDRANGLE MAP
7 1/2 MINUTE SERIES (TOPOGRAPHIC)
LA COSTA VALLEY QUADRANGLE

URS	Chevron Pipeline Company Project No. 26815217	SITE VICINITY MAP CHEVRON SUNOL PIPELINE SUNOL, CALIFORNIA	Figure 1

NORTH

0 50 100

SCALE IN FEET

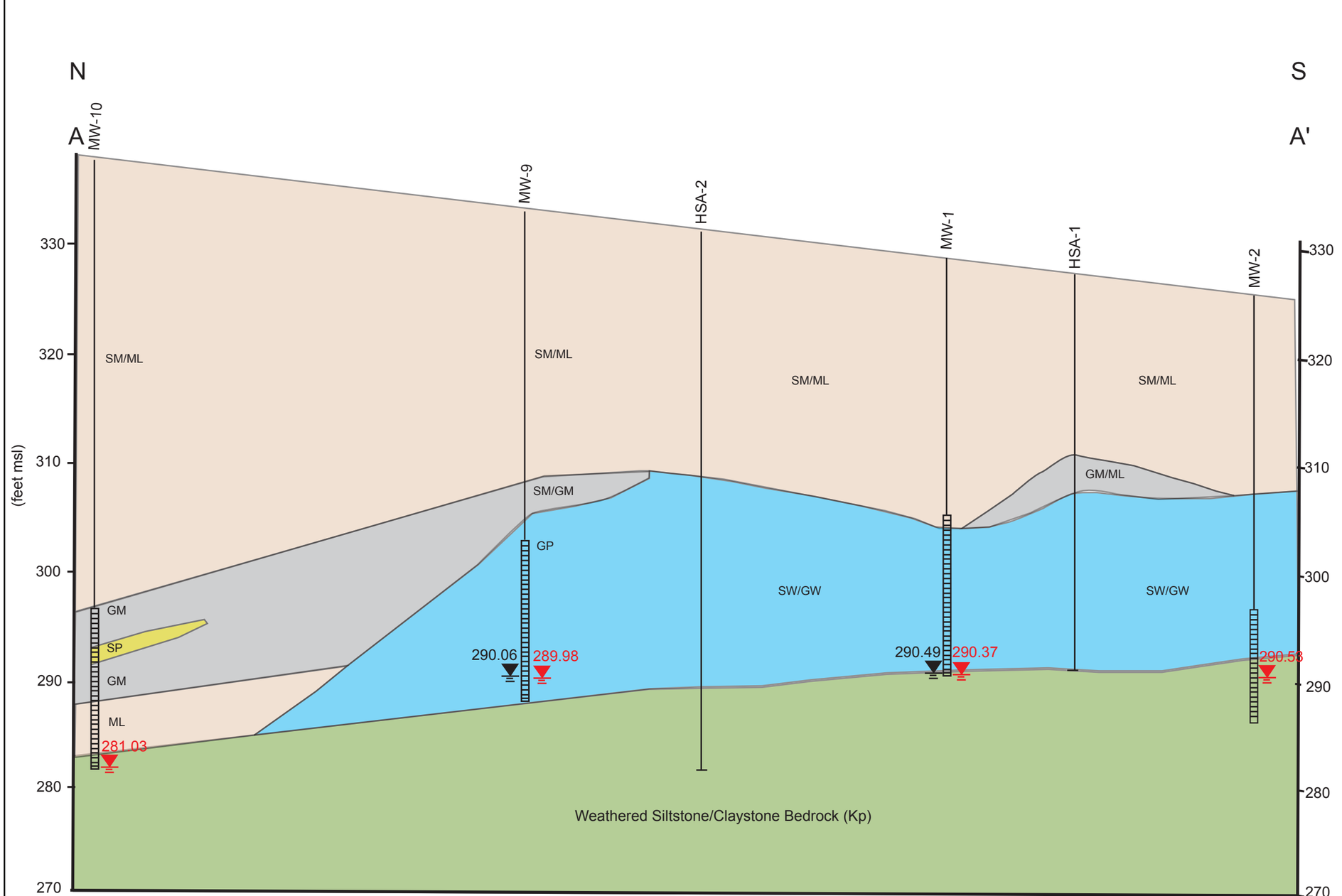


LEGEND:

- SURFACE WATER SAMPLE
- SOIL BORING
- MONITORING WELL
- SVE WELL
- SHELF
- FENCE
- PIPELINE
- HILL SLOPE 80-90% GRADE

URS	CHEVRON PIPELINE COMPANY Project No. 26815217	SITE MAP AND CROSS SECTION LOCATIONS CHEVRON SUNOL PIPELINE	Figure 2

Oct 08, 2007 - 2:26pm
X:\x_env_waste\Chevron Pipeline Company\Sunol Spill\Additional Well Installation 1-06\Add. Investigation Report\Figures\10_08_07\Figure 2_SVE-GW Locations_10_08_07.dwg



Vertical Scale 1”=10’

Horizontal Scale 1”=20’

- SM/ML — Silty Sand/Sandy Silt
- SP — Sand
- GM/ML/SM — Silty Gravel/Gravelly Silt/Gravelly Sand
- SW/GW/GP — Gravelly Sand/Sandy Gravel
- CL/ML — Clay & Silt
- Kp — Weathered Siltstone/Claystone Bedrock (Kp) - Cretaceous clay shale (Panoche Formation)
- Groundwater Monitoring Well
- Soil Boring
- Groundwater Level
- Product Level
- Lithologic Contact
- Inferred Contact

Notes

1) Elevation in feet above average mean sea level (msl).
2) Fluid elevations for MW-1, MW-2, MW-9, and MW-10 as measured on September 12, 2007.

URS	Chevron Sunol Pipeline Sunol, California Project No. 26815217	HYDROGEOLOGIC CROSS SECTION A-A’	Figure 3

W
B

E
B'

(feet msl)

400’-
390’-
380’-
370’-
360’-
350’-
340’-
330’-
320’-
310’-
300’-
290’-
280’-
270’-
260’-
250-
240’-
230’-
220’-
210’-
200’-

AR-2
MW-3
MW-1
SB-3
MW-5
SB-19
SB-20

Pipeline Release/
Dirt Road

Hillside Represents
Apparent Surface Trace
of Calaveras Fault

Calaveras Road

SM/ML
SP
SW/GW
CL/ML
GM/ML
319.16
290.94
290.49
290.37
Weathered Silty Sandstone/Sandstone Bedrock (Tbr)
Weathered Siltstone Bedrock (Kp)
Claystone Bedrock (Kp)
(Tbr)
CL/ML
Apparent Fault Zone
Kvb

Vertical
Scale
1”=20’

Horizontal
Scale
1”=20’

= Soil Boring
= Lithologic Contact
= Inferred Contact
= Unconformity

= Groundwater Monitoring Well
= Groundwater Level
= Product Level

TBr = Weathered Silty Sandstone/Sandstone Bedrock (Tbr) - Tertiary marine sandstone (Briones Formation)

TBr = Well Cemented Sandstone Bedrock (Tbr) - Tertiary marine sandstone (Briones Formation)

Kvb = Igneous Bedrock (Basalt or Gabbro) (Kvb) - Cretaceous Volcanic rocks (Franciscan Formation)

SM/ML = Silty Sand/Sandy Silt

SP = Sand

GM/ML = Silty Gravel/Gravelly Silt

SW/GW = Gravelly Sand/Sandy Gravel

CL/ML = Clay & Silt

Kp = Weathered Siltstone/Claystone Bedrock (Kp) - Cretaceous clay shale (Panoche Formation)

Notes
1) Elevation in feet above average mean sea level (msl).
2) Ground water elevations for MW-1, MW-3, and MW-5 as measured on September 12, 2007.

URS

Chevron Sunol Pipeline
Sunol, California

Project No. 26815217

HYDROGEOLOGIC
CROSS SECTION B-B’

Figure
4

Appendix A
ACEH Letters Dated January 17, 2007, April 10, 2007, and August 17, 2007

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

January 17, 2007

Mr. Jeff Cosgray
Chevron Pipe Line Company
4800 Fournace Place
Bellaire, TX 77401-2324

Subject: SLIC Case No. RO0002892, Chevron Sunol Pipeline, 2793 Calaveras Road, Sunol, CA

Dear Mr. Cosgray:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the reports entitled, "Additional Groundwater Monitoring Well Installation and Third Quarter 2006 Groundwater Monitoring Report," dated December 4, 2006 and "Soil Vapor Extraction System Start-Up Report," dated December 19, 2006. Both reports were prepared on your behalf by URS Corporation. The "Additional Groundwater Monitoring Well Installation and Third Quarter 2006 Groundwater Monitoring Report," presents the results from installation of two monitoring wells and analytical results from groundwater sampling conducted in August 2006. Groundwater monitoring well MW-8 was installed to monitor contaminant migration through a gravel layer above bedrock on the east side of Calaveras Road. Fuel hydrocarbons were detected at elevated concentrations in soil samples collected from the well boring and in the initial groundwater sample collected from MW-8. Well MW-9 was installed north of existing monitoring wells at the site to help evaluate the downgradient extent of contamination. Free-phase product was observed in well MW-9; therefore, the downgradient extent of dissolved phase contamination has not been determined. We request that you address the technical comments below and submit a Work Plan for additional investigation of the downgradient extent of contamination.

The "Soil Vapor Extraction System Start-Up Report," presents the results from installation of five additional soil vapor extraction (SVE) wells, soil sampling results, SVE start up, SVE system monitoring, and initial mass removal calculations. From system start up on November 28, 2006 to December 8, 2006, the system removed an estimated 920 pounds of hydrocarbons. Well SVE-8, which is located on the hillside slope is not operational due to groundwater in SVE-8. ACEH appreciates the efforts by Chevron Pipe Line Company to install the additional SVE wells on the steep hillside below the fuel release.

We request that you address the following technical comments, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. **Downgradient Extent of Contamination and Potential Discharge to Unnamed Creek and Alameda Creek.** Free-phase product is present in well MW-9, which is located approximately 160 feet west northwest of the release location. The purpose of well MW-9

was to assess the downgradient extent of dissolved phase contamination. Based on these results, please present plans in the Work Plan requested below to fully define the extent of free-phase product and the downgradient extent of dissolved phase groundwater contamination.

2. **Potential Discharge to Unnamed Creek and Alameda Creek.** We concur with the proposal to move the sampling location for the unnamed creek to a new location northwest of well MW-9 where the creek flows into the floodplain. Please implement this recommendation during the next quarterly groundwater monitoring. The location of the sampling location for the unnamed creek is to be shown on a detailed topographic map in the next quarterly monitoring report. ACEH will provide technical comments as necessary on the new location following receipt of the quarterly monitoring report.

3. **Conclusions Regarding Unconfined Groundwater at Well MW-8.** The fourth bulleted conclusion in the "Additional Groundwater Monitoring Well Installation and Third Quarter 2006 Groundwater Monitoring Report," regarding unconfined groundwater at well MW-8 indicates that, "the hillside appears to act as a recharge source for the nursery unconfined water-bearing zone." The conclusion goes on to state that, "the presence of groundwater at MW-8, within unconsolidated soils above the sandstone bedrock contact, supports URS' previous hypothesis that groundwater from the hillside acts as a preferential pathway for groundwater transport (URS 2006d)." We assume that the conclusion meant to state that the gravel layer is a preferential pathway for groundwater rather than groundwater acts as a preferential pathway for groundwater. However, this conclusion does not appear to be consistent with previous conclusions and recommendations by URS. Please note that URS submitted correspondence entitled, "Response to ACEH June 5, 2006 Letter – Technical Comment 1. Gravel Layer as Preferential Pathway," dated July 7, 2006, which objected to the installation of well MW-8 and indicated that, "the gravel zone in this area is part of the unsaturated zone rather than a saturated zone migration pathway, nor would wells in this location aid in further understanding of TPH migration or extent because it is in the middle of the impacted and migration pathway area that has already been investigated." The observation of groundwater within the gravel zone does not appear to be consistent with an unsaturated zone. Furthermore, the detection of elevated concentrations of fuel hydrocarbons in groundwater within a saturated preferential pathway does provide useful information to assess the ongoing transport of fuel hydrocarbons from the hillside to the unconfined groundwater west of Calaveras Road. Please revise your evaluation of groundwater flow through the gravel layer and propose any additional investigation or well installation that may be required in the Work Plan requested below.

4. **Quarterly Groundwater Monitoring.** Please continue quarterly groundwater monitoring from the existing wells and a surface water location as discussed in technical comment 2. Since ethanol and methanol have not been detected in results to date, you may discontinue analysis for ethanol and methanol in future groundwater monitoring. The "Additional Groundwater Monitoring Well Installation and Third Quarter 2006 Groundwater Monitoring Report," recommends continuing analysis for geochemical indicators. Please note that ACEH has not requested that you conduct analysis for geochemical indicators. The purpose of analyzing for geochemical indicators is not clear given the groundwater monitoring well network for the site. Wells MWS-1 and MW-9 have free product; well MW-2 appears to be upgradient of the groundwater contamination; wells MW-3 and MW-4 do not appear to sample formation water; and wells MW-5, -6, and -7 monitor the confined bedrock aquifer.

None of these wells appear to effectively monitor a dissolved phase plume in the unconfined aquifer. Only well MW-8, which is directly downslope from the release and contains groundwater with 18,000 micrograms per liter of TPH as gasoline appears to monitor dissolved phase concentrations in the unconfined aquifer. Please describe the rationale for continued monitoring of geochemical indicators. Please present results of the quarterly groundwater sampling in the monitoring reports requested below.

5. **Operation of SVE System.** We concur with the recommendation to monitor the operation of the SVE system. We request that you present results from the SVE system monitoring on a quarterly basis in the monitoring reports requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **February 15, 2007** – Quarterly Groundwater Monitoring Report for the Fourth Quarter 2007
- **March 19, 2007** – Work Plan for Site Characterization
- **March 20, 2007** – Quarterly SVE Operation and Monitoring Report
- **May 15, 2007** – Quarterly Groundwater Monitoring Report for the First Quarter 2007
- **June 20, 2007** – Quarterly SVE Operation and Monitoring Report

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed

locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6791.

Sincerely,

Jerry Wickham

Jerry Wickham
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Colleen Winey, QIC 80201
Zone 7 Water Agency
100 North Canyons Parkway,
Livermore, CA 94551

Joe Morgan III
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Hanchih Angela Liang
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Joe Naras
San Francisco Public Utilities Commission
Natural Resources Division
1657 Rollins Road
Burlingame, CA 94010

Craig Freeman
San Francisco Public Utilities Commission
Environmental and Regulatory Compliance Division
1145 Market Street, Suite 500
San Francisco, CA 94103

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

April 10, 2007

Mr. Jeff Cosgray
Chevron Pipe Line Company
4800 Fournace Place
Bellaire, TX 77401-2324

Subject: SLIC Case No. RO0002892 and Geotracker Global ID SL0600100443, Chevron Sunol Pipeline, 2793 Calaveras Road, Sunol, CA 94586

Dear Mr. Cosgray:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted reports entitled, "Fourth Quarter 2006 Groundwater Monitoring Report," dated February 12, 2007 and "Work Plan for Additional Site Characterization," dated March 16, 2007. Both reports were prepared on your behalf by URS Corporation. The "Fourth Quarter 2006 Groundwater Monitoring Report," presents the results from groundwater sampling conducted in November 2006. Free-phase product continues to be observed in well MW-9, which is the well farthest northwest (downgradient) from the release. ACEH previously requested in our January 17, 2007 correspondence that you submit a Work Plan for additional investigation of the downgradient extent of contamination beyond well MW-9.

The "Work Plan for Additional Characterization," proposes collecting additional subsurface information prior to installing additional monitoring wells. URS recommends collecting soil vapor data using GORE™ modules within an area north of well MW-9 bordering Calaveras Road. These data would be collected prior to installing additional monitoring wells.

We have no objection to conducting additional investigation to help select locations for additional monitoring wells. However, it is not clear that the use of passive soil vapor sampling probes such as those proposed will be successful in helping to delineate the extent of dissolved phase contamination. Therefore, you may wish to test the effectiveness of the proposed method within a smaller area that includes well MW-9 prior to collecting data over the much larger area proposed. If the technique is not able to detect volatile fuel components in the area of well MW-9 then extending the investigation 1,000 feet to the north is not likely to be effective. We request that you submit a Work Plan for installing additional monitoring wells **by July 10, 2007**, which should provide sufficient time to conduct two phases of passive soil vapor sampling to potentially help locate the wells.

We request that you address the following technical comments, perform the proposed work, and send us the reports described below.

TECHNICAL COMMENTS

1. **Proposed Survey Area.** As discussed above, we recommend that you implement the proposed passive soil vapor sampling over a smaller test area that includes well MW-9 prior to implementing soil vapor sampling over the proposed area extending 1,000 feet to the north northwest. If the use of GORE™ modules within a test area appears successful in characterizing the contaminant plume, the technique could be extended into a larger area north and west of well MW-9. The results of the passive soil vapor sampling are to be presented in the Work Plan for Monitoring Well Installation requested below.

2. **Potential Discharge to Unnamed Creek and Alameda Creek.** The sampling location for the unnamed creek is to be moved to a new location northwest of well MW-9 where the creek flows into the floodplain. Please show the sampling location for the unnamed creek on a detailed topographic map in the Quarterly SVE Operation and Groundwater Monitoring Report for the First Quarter 2007. ACEH will provide technical comments as necessary on the new location following receipt of the quarterly monitoring report.

3. **Quarterly Groundwater Monitoring.** Please continue quarterly groundwater monitoring from the existing wells and a surface water location as discussed in technical comment 2. The recommendation to eliminate groundwater sampling from wells MW-3 and MW-4 during periods when the wells are not hydraulically connected with the unconfined water-bearing zone is acceptable. The use of a sorbent boom in well MW-9 as an alternative to manual free product removal is also acceptable. Please present results of the quarterly groundwater sampling in the monitoring reports requested below.

4. **Operation of SVE System.** We request that you present results from operation and monitoring of the SVE system on a quarterly basis in the monitoring reports requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **May 15, 2007** – Quarterly SVE Operation and Groundwater Monitoring Report for the First Quarter 2007
- **July 10, 2007** – Work Plan for Monitoring Well Installation
- **August 15, 2007** – Quarterly SVE Operation and Groundwater Monitoring Report for the Second Quarter 2007

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety

Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6791.

Sincerely,

Jerry Wickham
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Colleen Winey, QIC 80201
Zone 7 Water Agency
100 North Canyons Parkway,
Livermore, CA 94551

Joe Morgan III
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Hanchih Angela Liang
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Joe Naras
San Francisco Public Utilities Commission
Natural Resources Division
1657 Rollins Road
Burlingame, CA 94010

Craig Freeman
San Francisco Public Utilities Commission
Environmental and Regulatory Compliance Division
1145 Market Street, Suite 500
San Francisco, CA 94103

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

August 17, 2007

Mr. Jeff Cosgray
Chevron Pipe Line Company
4800 Fournace Place
Bellaire, TX 77401-2324

Subject: SLIC Case No. RO0002892 and Geotracker Global ID SL0600100443, Chevron Sunol Pipeline, 2793 Calaveras Road, Sunol, CA 94586

Dear Mr. Cosgray:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted documents entitled, "Second Quarter 2007 Groundwater and Soil Vapor Extraction Monitoring Report," dated August 15, 2007 and "Work Plan for Additional Monitoring Well Installation," dated July 27, 2007. Both documents were prepared on your behalf by URS Corporation. The "Second Quarter 2007 Groundwater and Soil Vapor Monitoring Report," presents the results from groundwater sampling conducted in June 2007 and soil vapor extraction system monitoring conducted during the second quarter 2007. Free-phase product continues to be observed in well MW-9, which is the well farthest northwest (downgradient) from the release.

The "Work Plan for Additional Monitoring Well Installation," proposes two to five monitoring wells located north and northwest from well MW-9. The proposed scope of work is generally acceptable and may be implemented provided that the technical comments below are addressed during the proposed field investigation. Submittal of a revised Work Plan is not required unless an alternate scope of work outside that described in the Work Plan and technical comments below is proposed.

We request that you address the following technical comments, perform the proposed work, and send us the reports described below. Please provide 72-hour advance written notification to this office (e-mail preferred to jerry.wickham@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Logging of Monitoring Well Borings.** Soils are to be continuously sampled and logged in each of the monitoring well soil borings. Soil samples are to be collected for laboratory analysis within all intervals where staining, odor, or elevated photoionization readings are observed. Please present the results from well installation in the Additional Monitoring Well Installation Report requested below.

2. **Depth of Monitoring Wells.** We concur with the proposal to advance the monitoring wells to bedrock. The bottom of the well screen is to be installed a minimum of one foot below the top of bedrock in order to effectively monitor potential contaminant migration along the bedrock interface.

3. **Hydrogeologic Cross Sections.** Please use data from the additional monitoring well borings to expand the existing hydrogeologic cross sections for the site. Please present the cross sections in the Additional Monitoring Well Installation Report requested below.

4. **Quarterly Groundwater Monitoring.** We request that you continue quarterly groundwater monitoring for the site including sampling and analytical results from the proposed additional groundwater monitoring wells. We have no objection to discontinuing monitoring in wells MW-5 though MW-7 following the third quarter 2007 sampling event provided that the third quarter 2007 results are consistent with previous data. Please present results of the quarterly groundwater sampling in the monitoring reports requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **November 15, 2007** – Quarterly SVE Operation and Groundwater Monitoring Report for the Third Quarter 2007
- **December 19, 2007** – Additional Monitoring Well Installation Report
- **February 15, 2008** – Quarterly SVE Operation and Groundwater Monitoring Report for the Fourth Quarter 2007

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the

SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 567-6791.

Sincerely,

Jerry Wickham

Jerry Wickham
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Colleen Winey, QIC 80201
Zone 7 Water Agency
100 North Canyons Parkway,
Livermore, CA 94551

Joe Morgan III
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Jacob Henry
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Joe Naras
San Francisco Public Utilities Commission
Natural Resources Division
1657 Rollins Road
Burlingame, CA 94010

Craig Freeman
San Francisco Public Utilities Commission
Environmental and Regulatory Compliance Division
1145 Market Street, Suite 500
San Francisco, CA 94103

Donna Drogos, ACEH
Jerry Wickham, ACEH
File

Appendix B
Zone 7 Alameda County Flood Control and Water Conservation District: Drilling Permit

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

100 NORTH CANYONS PARKWAY, LIVERMORE, CA 94551-9486 PHONE (925) 454-5000

August 23, 2007

Mr. Jacob Henry
URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612

Dear Mr. Henry:

Enclosed is drilling permit 27145 for a monitoring well construction project at Calaveras Road (mile post 2.7) near Sunol. Also enclosed is a current drilling permit application for your files. Drilling permit applications for future projects can also be downloaded from our web site at www.zone7water.com.

Please note that permit conditions A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, permit number and any analysis of the soil and water samples. Please submit the original of your completion report. We will forward your submittal to the California Department of Water Resources.

If you have any questions, please contact me at extension 5056 or Matt Katen at extension 5071.

Sincerely,

Wyman Hong

Wyman Hong
Water Resources Specialist

Enc.

P:\WRE\GPOs\GPO1\GPO1.MONITORING.wpd

ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 454-5728

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT MP 27 Calaveras Road
Sunol, CA — SFPUC Property

California Coordinates Source _____ ft. Accuracy± _____ ft.
CCN _____ ft. CCE _____ ft.
APN _____
37°, 33', 02"N, 121°, 51', 20"W

CLIENT
Name Chevron Pipeline Company (Attn: Jeff Cosgray)
Address 4800 Fournace Place, E520C Phone _____
City Bellaire, Texas Zip 77401

APPLICANT
Name URS Corporation
Attn: Jacob Henry Fax 510-874-3268
Address 1333 Broadway, Ste. 800 Phone 510-874-3252
City Oakland, CA Zip 94612

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒
Monitoring	☒	Well Destruction	☐

PROPOSED WELL USE

New Domestic	☐	Irrigation	☐
Municipal	☐	Remediation	☐
Industrial	☐	Groundwater Monitoring	☒
Dewatering	☐	Other _____	☐

DRILLING METHOD:
Mud Rotary ☐ Air Rotary ☐ Hollow Stem Auger ☐
Cable Tool ☐ Direct Push ☐ Other Sonic ☒

DRILLING COMPANY Cascade Drilling, Inc.
DRILLER'S LICENSE NO. C-57 717510

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 60* ft.
Surface Seal Depth 38-48 ft. Number up to 5 wells, no less than 2 wells
* Wells may only be 50' bgs.

SOIL BORINGS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 9/4/07
ESTIMATED COMPLETION DATE 9/12/07 - if all 5 wells are installed.

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.
APPLICANT'S SIGNATURE _____ Date 7/27/07
Jacob Henry

ATTACH SITE PLAN OR SKETCH

PERMIT NUMBER 27145
WELL NUMBER 4S/1E-27N21 & 27N22
APN _____

PERMIT CONDITIONS

(Circled Permit Requirements Apply)

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
3. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
4. A sample port is required on the discharge pipe near the wellhead.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION. See attached.

(G.) SPECIAL CONDITIONS. Submit to Zone 7 within 60 days after the completion of permitted work the well installation report including all soil and water laboratory analysis results.

Approved Wyman Hong Date 8/23/07
Wyman Hong

Revised: April 27, 2005

Appendix C
Boring Logs and Well Construction Details

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING & WELL CONSTRUCTION

Borehole ID: MW-10

Total Depth: 55.7 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Client: Chevron Pipeline	**Drilling Company:** Cascade Drilling
Site Location: Sunol, California	**Driller:** Carl Treece
Project Manager: Joe Morgan	**Type of Drilling Rig:** Gus Pech equipped with Sonicor 50K head
PG: Gregory White	**Drilling Method:** Sonic
Geologist: Cliff Pearson	**Sampling Method:** 4-inch core barrel
Job Number: 26815217	**Date(s) Drilled:** September 4-5, 2007

BORING & WELL INFORMATION

Groundwater Depth: Not Encountered	**Boring Location:** Valley Crest Tree Company, 8501 Calveras Road
Air Knife or Hand Auger Depth: 5 ft bgs	**Boring Diameter:** 6 inches
Coordinates: **X** 6168146.88 **Y** 2025919.55 **Z** 336.55	**Boring Type:** Monitoring Well Completion

Depth (ft bgs)	USCS	Symbol	Lithologic Description	% Recovery	PID Reading	Well Construction Details	Drilling Comments
0	SM		SILTY SAND: Very dark brown (10YR 3/1), fine, very loose, low plasticity fines, dry, trace clay. 60% sand, 35% silt, 5% clay.				11:45 Begin hand augering to 5 ft bgs.
2						0-40.3 ft bgs: 2" sch 40 PVC blank well casing	
4							
6					0	0-37 ft bgs: Cement/ Bentonite grout	12:05 Begin advancing 4" core barrel.
8	ML		SILT: Very dark grayish brown (10YR 3/2), low plasticity, stiff, dry, trace clay and sand, caliche present. 95% silt, 5% clay and sand.		0		
10							
12			Decreased strength to medium stiff, friable.				
14					0.3		
16							
18			Grades to SANDY SILT, loose sand. 80% silt, 20% sand.		0.2		
20							

Depth (ft bgs)	USCS	Symbol	Lithologic Description	% Recovery	PID Reading	Well Construction Details	Comments
22			Increased clay and sand content. Medium to low plasticity.				
24	SM		SILTY SAND: Very dark grayish brown (10YR 3/2), loose, low plasticity fines, dry, trace clay. 60% sand, 35-40% silt, <5% clay.		0		
26							
28	ML		SANDY SILT: Very dark grayish brown (10YR 3/2), low plasticity, very stiff, dry, trace clay, caliche present. 55% silt, 40-45% sand, <5% clay.		0		
30							
32							
34					0		
36			Increased clay content. Medium to low plasticity fines.				
38	GM		SILTY GRAVEL: Light gray (10YR 7/1), loose, rounded to sub-rounded gravel and cobbles up to 3-inches in diameter, dry, trace sand.		0	37-39 ft bgs: Hydrated Bentonite chips	13:05 Collect soil sample MW-10-36.5.
40						39-55.7 ft bgs: #3 sand	
42	SP		GRAVELLY SAND: Very dark brown (10YR 3/1), coarse, loose, sub-rounded sand, fine sub-rounded gravel, medium to low plasticity fines, moist, with clay. 90% sand and gravel, 10% clay.		0	40.3-55.3 ft bgs: 2" sch 40 PVC 0.02" slotted well screen	14:00 Collect soil sample MW-10-43.
44	GM		SILTY GRAVEL: Light gray (10YR 7/1), fine to coarse, loose, rounded to subrounded gravel and cobbles up to 3-inches in diameter, dry, trace sand.				15:30 Air line on rig breaks. Drillers need to order a new part. End of boring for day. Both 4-inch core barrel and 6-inch casing advanced to 48 ft bgs.
46							
48	ML		SANDY SILT: Very dark brown (10YR 3/1), low plasticity, medium stiff, dry, trace sub-rounded gravel and clay. 75% silt, 20% sand, <5% gravel, <5% clay.		2.1		
50			Increased sand and moisture content. Medium plasticity fines, coarse sands, moist. 65% silt, 30% sand, 5% clay.		0		9/5/2007 11:20 Air line repaired. Resume drilling from 48 ft bgs.

LOG OF BORING

Borehole ID: MW-10

Depth (ft bgs)	USCS	Symbol	Lithologic Description	% Recovery	PID Reading	Well Construction Details	Comments
52			fines, coarse sands, moist. 65% silt, 30% sand, 5% clay.				
54			SILTSTONE: Dark greenish gray (GLEY 1 4/5G), slightly weathered bedrock, hard, dry. 95% silt, 5% clay.		0	55.3-55.7 ft bgs: 2" sch 40 PVC bottom cap	12:00 Collect soil sample MW-10-52.5.
56			**END OF BORING AT 55.7 FT BGS**				12:40 End of boring at 55.7 ft bgs. Begin well construction.
58							
60							

URS

1333 Broadway, Suite 800
Oakland, California 94612

LOG OF BORING & WELL CONSTRUCTION

Borehole ID: MW-11

Total Depth: 48 ft bgs

PROJECT INFORMATION	DRILLING INFORMATION
Client: Chevron Pipeline	**Drilling Company:** Cascade Drilling
Site Location: Sunol, California	**Driller:** Carl Treece
Project Manager: Joe Morgan	**Type of Drilling Rig:** Gus Pech equipped with Sonicor 50K head
PG: Gregory White	**Drilling Method:** Sonic
Geologist: Cliff Pearson	**Sampling Method:** 4-inch core barrel
Job Number: 26815217	**Date(s) Drilled:** September 5-6, 2007

BORING & WELL INFORMATION

Groundwater Depth: Not Encountered	**Boring Location:** Valley Crest Tree Company, 8501 Calveras Road
Air Knife or Hand Auger Depth: 5 ft bgs	**Boring Diameter:** 6 inches
Coordinates: **X** 6168077.24 **Y** 2025876.37 **Z** 330.29	**Boring Type:** Monitoring Well Completion

Depth (ft bgs)	USCS	Symbol	Lithologic Description	% Recovery	PID Reading	Well Construction Details	Drilling Comments
0	ML		SANDY SILT: Very dark brown (10YR 3/1), low plasticity, soft, loose sand, dry. 60% silt, 30-35% sand, 5-10% clay.				16:15 Begin hand augering to 5 ft bgs.
2						0-37 ft bgs: 2" sch 40 PVC blank well casing	
4			As above with caliche.		0		16:30 Begin advancing 4" core barrel.
6						0-34 ft bgs: Cement/ Bentonite grout	
8					0		
10							
12			Increased sand and clay content, very friable. 50% silt, 40% sand, 10% clay.		0		
14							
16			Grades to CLAYEY SILT, medium plasticity.				
18					0		
20			Increased silt content. Very dark grayish brown (10YR 3/2),				

LOG OF BORING

Borehole ID: MW-11

Depth (ft bgs)	USCS	Symbol	Lithologic Description	% Recovery	PID Reading	Well Construction Details	Comments
22			Increased silt content. Very dark grayish brown (10YR 3/2), low plasticity, loose sand, dry. 70% silt, 30% sand, <5% clay.		0		
24							
26							
28	GM		SILTY SANDY GRAVEL: Light gray (10YR 7/1), loose, angular to sub-rounded gravel, dry. Cobbles present.		0		17:30 Collect soil sample MW-11-26.5. End of boring for day. 4-inch core barrel advanced to 38 ft bgs. Very difficult drilling from 37-38 ft (boulder?). 6-inch casing advanced to 28 ft bgs.
30							
32							
34					0	34-36 ft bgs: Hydrated Bentonite chips	
36						36-47.3 ft bgs: #3 sand	
38					0	37-47 ft bgs: 2" sch 40 PVC 0.02" slotted well screen	9/6/2007 07:40 Resume drilling. Begin advancing 6-inch casing to 38 ft bgs.
40							
42			As above, SILTY SANDY GRAVEL. 60% gravel and cobbles, 20% sand, 20% silt.				
44			Moist zone from 43-44 ft bgs.		0		
46			SILTSTONE: Reddish brown (5YR 4/3), weathered siltstone bedrock, friable, dry. Dark greenish gray (GLEY 1 4/1), semi-consolidated siltstone bedrock, hard, dry.			47-47.3 ft bgs: 2" sch 40 PVC bottom cap	08:30 Collect soil sample MW-11-46. End of boring at 48 ft bgs. Begin well installation.
48			**END OF BORING AT 48 FT BGS**		0	47.3-48 ft bgs: Slough	
50							

Appendix D
Laboratory Analytical Results

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared for:

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

713-432-3335

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 1054689. Samples arrived at the laboratory on Thursday, September 06, 2007. The PO# for this group is 0015010091 and the release number is COSGRAY.

Client Description	Lancaster Labs Number
MW-10-36.5 Grab Soil	5146958
MW-10-43 Grab Soil	5146959
MW-10-52.5 Grab Soil	5146960

ELECTRONIC COPY TO	URS	Attn: Joe Morgan
ELECTRONIC COPY TO	URS	Attn: April Giangerelli
ELECTRONIC COPY TO	URS	Attn: Jacob Henry
ELECTRONIC COPY TO	URS	Attn: Joe Petsche
ELECTRONIC COPY TO	URS	Attn: Renee McFarlan
ELECTRONIC COPY TO	URS	Attn: Amber Koster
ELECTRONIC COPY TO	URS Corporation	Attn: Greg White

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Questions? Contact your Client Services Representative
Megan A Moeller at (717) 656-2300

Respectfully Submitted,

Christine Dulaney
Senior Specialist

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. SW 5146958

MW-10-36.5 Grab Soil
NA URSO
Sunol Pipeline SL0600100443 MW-10
Collected:09/04/2007 13:00 by GW

Account Number: 11875

Submitted: 09/06/2007 12:00
Reported: 09/18/2007 at 08:00
Discard: 10/19/2007

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

SNL36
I 5E w

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01725	TPH-GRO - Soils	n.a.	N.D.	0.8	mg/kg	20.16
	The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time.					
07360	BTEX+MTBE by 8260B					
05460	Benzene	71-43-2	N.D.	0.021	mg/kg	41.95
05466	Toluene	108-88-3	N.D.	0.042	mg/kg	41.95
05474	Ethylbenzene	100-41-4	0.083	0.042	mg/kg	41.95
06301	Xylene (Total)	1330-20-7	0.062	0.042	mg/kg	41.95
	The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised.					

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01725	TPH-GRO - Soils	SW-846 8015B modified	1	09/06/2007 16:38	Linda C Pape	20.16
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	09/06/2007 17:01	Kerri E Koch	41.95
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	09/04/2007 13:00	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	09/04/2007 13:00	Client Supplied	1
06647	GC Field Preserved MeOH	SW-846 5035A	1	09/04/2007 13:00	Client Supplied	n.a.
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035A	1	09/04/2007 13:00	Client Supplied	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. SW 5146959

MW-10-43 Grab Soil
NA URSO
Sunol Pipeline SL0600100443 MW-10
Collected:09/04/2007 14:00 by GW

Account Number: 11875

Submitted: 09/06/2007 12:00
Reported: 09/18/2007 at 08:00
Discard: 10/19/2007

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

SNL43
I 5E w

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01725	TPH-GRO - Soils	n.a.	N.D.	0.8	mg/kg	20.03
	The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time.					
07360	BTEX+MTBE by 8260B					
05460	Benzene	71-43-2	N.D.	0.015	mg/kg	30.12
05466	Toluene	108-88-3	N.D.	0.030	mg/kg	30.12
05474	Ethylbenzene	100-41-4	N.D.	0.030	mg/kg	30.12
06301	Xylene (Total)	1330-20-7	N.D.	0.030	mg/kg	30.12
	The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised.					

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01725	TPH-GRO - Soils	SW-846 8015B modified	1	09/06/2007 17:16	Linda C Pape	20.03
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	09/06/2007 17:24	Kerri E Koch	30.12
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	09/04/2007 14:00	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	09/04/2007 14:00	Client Supplied	1
06647	GC Field Preserved MeOH	SW-846 5035A	1	09/04/2007 14:00	Client Supplied	n.a.
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035A	1	09/04/2007 14:00	Client Supplied	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. SW 5146960

MW-10-52.5 Grab Soil
NA URSO
Sunol Pipeline SL0600100443 MW-10
Collected:09/05/2007 12:00 by GW

Account Number: 11875

Submitted: 09/06/2007 12:00
Reported: 09/18/2007 at 08:00
Discard: 10/19/2007

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

SNL52
I 5E w

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01725	TPH-GRO - Soils	n.a.	8.3	1.6	mg/kg	39.68
	The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time.					
07360	BTEX+MTBE by 8260B					
05460	Benzene	71-43-2	N.D.	0.019	mg/kg	38.23
05466	Toluene	108-88-3	0.049	0.038	mg/kg	38.23
05474	Ethylbenzene	100-41-4	0.044	0.038	mg/kg	38.23
06301	Xylene (Total)	1330-20-7	0.12	0.038	mg/kg	38.23
	The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised.					

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01725	TPH-GRO - Soils	SW-846 8015B modified	1	09/06/2007 16:00	Linda C Pape	39.68
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	09/06/2007 17:47	Kerri E Koch	38.23
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	09/05/2007 12:00	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	09/05/2007 12:00	Client Supplied	1
06647	GC Field Preserved MeOH	SW-846 5035A	1	09/05/2007 12:00	Client Supplied	n.a.
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035A	1	09/05/2007 12:00	Client Supplied	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1054689
Reported: 09/18/07 at 08:00 AM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 07246A33B	Sample number(s): 5146958-5146960							
TPH-GRO - Soils	N.D.	1.0	mg/kg	97		67-119		
Batch number: Q072491AA	Sample number(s): 5146958-5146960							
Benzene	N.D.	0.025	mg/kg	95	102	84-115	6	30
Toluene	N.D.	0.050	mg/kg	95	100	81-116	5	30
Ethylbenzene	N.D.	0.050	mg/kg	94	98	82-115	4	30
Xylene (Total)	N.D.	0.050	mg/kg	93	99	82-117	6	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 07246A33B	Sample number(s): 5146958-5146960 UNSPK: P131105								
TPH-GRO - Soils	82	83	39-118	2	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TPH-GRO - Soils
Batch number: 07246A33B

	Trifluorotoluene-F
5146958	76
5146959	79
5146960	44*
Blank	105
LCS	100
MS	96
MSD	93
Limits:	61-122

Analysis Name: BTEX+MTBE by 8260B
Batch number: Q072491AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1054689
Reported: 09/18/07 at 08:00 AM

Surrogate Quality Control

5146958	88	88	84	86
5146959	84	86	81	79
5146960	88	86	84	86
Blank	90	91	86	86
LCS	87	91	87	90
LCSD	91	92	90	91
Limits:	71-114	70-109	70-123	70-111

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Chevron California Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

Acct. #: 11875 For Lancaster Laboratories use only Sample #: 5146958-60 SCR#: 242062

G# 1054689

Facility #:
Site Address: Chevron Sunol Pipeline
Chevron PM: Lead Consultant:
Consultant/Office: URS - Oakland
Consultant Prj. Mgr.: Joe Morgan
Consultant Phone #: 510-874-3201 Fax #: 510-874-3268
Sampler: G. Wilde, Cliff P.
Service Order #: ☐ Non SAR:

Analyses Requested

Preservation Codes

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy's on highest hit
☐ Run ____ oxy's on all hits

Field Point Name	Matrix	Repeat Sample	Top Depth	Year Month Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers	BTEX + MTBE 8260 ☐ 8021 ☐	TPH 8015 MOD GRO	TPH 8015 MOD DRO ☐ Silica Gel Cleanup	8260 full scan	Oxygenates ____	Lead 7420 ☐ 7421 ☐
MW-10-36.5	S			9/4/2007	1300		X		5	X	X				
MW-10-43	S			9/4/2007	1400		X		5	X	X				
MW-10-52.5	S			9/5/2007	1200		X		5	X	X				

Comments / Remarks
BTEX Only,
No MTBE

Zero Day Turn

Turnaround Time Requested (TAT) (please circle)
STD. TAT 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I – Full
Type VI (Raw Data) ☐ Coelt Deliverable not needed
WIP (RWQCB)
Disk

Relinquished by:	Date	Time	Received by:	Date	Time
	9/5/07	12:30			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by Commercial Carrier: UPS FedEx Other			Received by:	Date 9/6/07	Time 12:00
Temperature Upon Receipt 3.0 C°			Custody Seals Intact? Yes No		

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared for:

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

713-432-3335

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 1054961. Samples arrived at the laboratory on Friday, September 07, 2007. The PO# for this group is 0015010091 and the release number is COSGRAY.

Client Description	Lancaster Labs Number
MW-11-26.5 Grab Soil	5148670
MW-11-46 Grab Soil	5148671

ELECTRONIC COPY TO	URS	Attn: Joe Morgan
ELECTRONIC COPY TO	URS	Attn: April Giangerelli
ELECTRONIC COPY TO	URS	Attn: Jacob Henry
ELECTRONIC COPY TO	URS	Attn: Joe Petsche
ELECTRONIC COPY TO	URS	Attn: Renee McFarlan
ELECTRONIC COPY TO	URS	Attn: Amber Koster
ELECTRONIC COPY TO	URS Corporation	Attn: Greg White

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Questions? Contact your Client Services Representative
Megan A Moeller at (717) 656-2300

Respectfully Submitted,

Valerie L. Tomayko
Group Leader

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. SW 5148670

MW-11-26.5 Grab Soil
NA URSO
Sunol Pipeline SL0600100443 MW-11
Collected:09/05/2007 17:30 by GW

Account Number: 11875

Submitted: 09/07/2007 09:25
Reported: 09/17/2007 at 10:36
Discard: 10/18/2007

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

11-26
I 5E w

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01725	TPH-GRO - Soils	n.a.	N.D.	0.8	mg/kg	20.19
	The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time.					
07360	BTEX+MTBE by 8260B					
05460	Benzene	71-43-2	N.D.	0.016	mg/kg	31.21
05466	Toluene	108-88-3	N.D.	0.031	mg/kg	31.21
05474	Ethylbenzene	100-41-4	N.D.	0.031	mg/kg	31.21
06301	Xylene (Total)	1330-20-7	N.D.	0.031	mg/kg	31.21
	The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised.					

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01725	TPH-GRO - Soils	SW-846 8015B modified	1	09/07/2007 16:44	Linda C Pape	20.19
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	09/07/2007 16:50	Angela D Sneeringer	31.21
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	09/05/2007 17:30	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	09/05/2007 17:30	Client Supplied	1
06647	GC Field Preserved MeOH	SW-846 5035A	1	09/05/2007 17:30	Client Supplied	n.a.
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035A	1	09/05/2007 17:30	Client Supplied	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. SW 5148671

MW-11-46 Grab Soil
NA URSO
Sunol Pipeline SL0600100443 MW-11
Collected:09/06/2007 08:30 by GW

Account Number: 11875

Submitted: 09/07/2007 09:25
Reported: 09/17/2007 at 10:36
Discard: 10/18/2007

Chevron Pipeline Co.
4800 Fournace Place - E320 D
Bellaire TX 77401

11-46
I 5E w

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01725	TPH-GRO - Soils	n.a.	N.D.	0.9	mg/kg	23.32
	The reported concentration of TPH-GRO does not include MTBE or other gasoline constituents eluting prior to the C6 (n-hexane) TPH-GRO range start time.					
07360	BTEX+MTBE by 8260B					
05460	Benzene	71-43-2	N.D.	0.024	mg/kg	47.17
05466	Toluene	108-88-3	N.D.	0.047	mg/kg	47.17
05474	Ethylbenzene	100-41-4	N.D.	0.047	mg/kg	47.17
06301	Xylene (Total)	1330-20-7	N.D.	0.047	mg/kg	47.17
	The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised.					

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01725	TPH-GRO - Soils	SW-846 8015B modified	1	09/07/2007 17:23	Linda C Pape	23.32
07360	BTEX+MTBE by 8260B	SW-846 8260B	1	09/07/2007 17:12	Angela D Sneeringer	47.17
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	09/06/2007 08:30	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	09/06/2007 08:30	Client Supplied	1
06647	GC Field Preserved MeOH	SW-846 5035A	1	09/06/2007 08:30	Client Supplied	n.a.
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035A	1	09/06/2007 08:30	Client Supplied	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1054961
Reported: 09/17/07 at 10:36 AM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 07249A33A	Sample number(s): 5148670-5148671							
TPH-GRO - Soils	N.D.	1.0	mg/kg	95		67-119		
Batch number: R072501AA	Sample number(s): 5148670-5148671							
Benzene	N.D.	0.025	mg/kg	96	97	84-115	1	30
Toluene	N.D.	0.050	mg/kg	103	102	81-116	1	30
Ethylbenzene	N.D.	0.050	mg/kg	101	101	82-115	0	30
Xylene (Total)	N.D.	0.050	mg/kg	101	101	82-117	0	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 07249A33A	Sample number(s): 5148670-5148671 UNSPK: P145769								
TPH-GRO - Soils	86	92	39-118	7	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TPH-GRO - Soils
Batch number: 07249A33A

	Trifluorotoluene-F
5148670	78
5148671	78
Blank	101
LCS	106
MS	77
MSD	78
Limits:	61-122

Analysis Name: BTEX+MTBE by 8260B
Batch number: R072501AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5148670	92	97	99	96

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Pipeline Co. Group Number: 1054961
Reported: 09/17/07 at 10:36 AM

Surrogate Quality Control

5148671	88	91	95	91
Blank	85	89	93	88
LCS	88	92	95	91
LCSD	86	91	93	89
Limits:	71-114	70-109	70-123	70-111

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Chevron California Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. #: 11875 Sample #: 5148070-71 SCR#: 242063
Group# 1054961

Facility #:
Site Address: Chevron Sunol Pipeline
Chevron PM: Lead Consultant:
Consultant/Office: URS - Oakland
Consultant Prj. Mgr.: Joe Morgan
Consultant Phone #: 510-874-3201 Fax #: 510-874-3268
Sampler: G. Wade
Service Order #: ☐ Non SAR:

Analyses Requested

Preservation Codes

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy's on highest hit
☐ Run ____ oxy's on all hits

Field Point Name	Matrix	Repeat Sample	Top Depth	Year Month Day	Time Collected	New Field Pt.	Grab	Composite	Total Number of Containers	BTEX + MTBE 8260 ☐ 8021 ☐	TPH 8015 MOD GRO	TPH 8015 MOD DRO ☐ Silica Gel Cleanup	8260 full scan	Oxygenates ___	Lead 7420 ☐ 7421 ☐
MW-11-26.5	S			9/5/07	1730		X			X	X				
MW-11-46	S			9/6/07	0830		X			X	X				

Comments / Remarks
BTEX only, no MTBE
Zero Day Turn

Turnaround Time Requested (TAT) (please circle)
STD. TAT 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I – Full
Type VI (Raw Data) ☐ Coelt Deliverable not needed
WIP (RWQCB)
Disk

		Date	Time		Date	Time
Relinquished by:		9/6/07	12:15	Received by:		
Relinquished by:				Received by:		
Relinquished by:				Received by:		
Relinquished by Commercial Carrier: UPS FedEx Other				Received by:	9/7/07	0925
Temperature Upon Receipt 2.5° C°				Custody Seals Intact? Yes No		

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.